State of Utah

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SPENCER J. COX
Lieutenant Governor

Department of
Environmental Quality

Alan Matheson
Executive Director

DIVISION OF WATER QUALITY
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Director

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Walter L. Baker
Executive Secretary

Date Received: April 8, 2016
Presented to WQB: June 22, 2016

WATER QUALITY BOARD
FEASIBILITY REPORT FOR WASTEWATER TREATMENT PROJECT
AUTHORIZATION

APPLICANT: Duchesne City
500 East Main Street
Duchesne City, Utah 84021
Telephone: (435) 738-2464

PRESIDING OFFICIAL: RoJean Rowley, Mayor
Telephone: (435) 738-2464

CONTACT PERSON: Diane Miller, City Recorder

CONSULTING ENGINEER: Byron Colton, P.E.
Horrocks Engineers, Inc
157 South, 300 East
Roosevelt, UT 84066
Telephone: (435) 722-0968

BOND COUNSEL: Eric Johnson
Blaisdell, Church & Johnson, P.C.
5995 South, Redwood Road
Taylorsville, Utah 84123
(801) 261-3407

APPLICANT'S REQUEST:

Duchesne City is requesting financial assistance in the amount of $2,700,000 in the form of **a $1,350,000 grant and $1,350,000 loan at 1.0% with a 30 year term** for the upgrade and rehabilitation of the City's lagoon wastewater treatment system. The City is also requesting a **$156,000 advance** to help the City pay for the design and bidding expenses.

North 1950 West • Salt Lake City, UT
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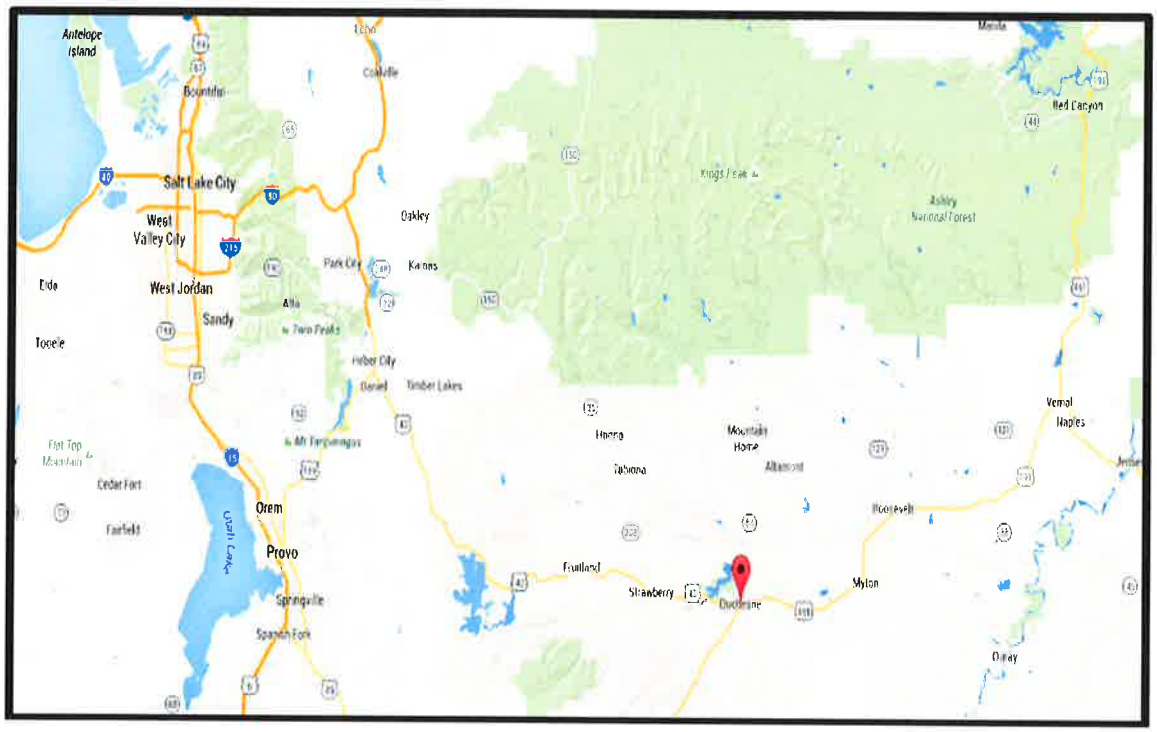
APPLICANT'S LOCATION:

Duchesne City is located in Duchesne County approximately 115 miles southeast of Salt Lake City.

MAP OF APPLICANT'S LOCATION



BACKGROUND UPDATE:

This project was presented as an introduction to the Water Quality Board meeting on April 27, 2016. This Feasibility Report has been updated to address questions raised by the Board at that time.

Duchesne City owns and operates a 25-acre, four cell lagoon system for treatment and disposal of the community's wastewater. The wastewater treatment plant was originally constructed in 1968 as a non-discharging lagoon system. The system was later converted to a discharging lagoon system with discharge to the Duchesne River under a UPDES permit. The need to discharge is intermittent and infrequent. The system was last upgraded in 1985 and has a design flow rate of 420,000 gallons per day (gpd). Lagoon Cell 1 provides primary treatment and Cells 2, 3 and 4 provide secondary treatment.

In 2014, staff assisted the City with an evaluation of accumulated sludge in the lagoon system. Three to four feet of sludge was present in the six feet deep lagoon Cells 1 and 2. This amount of sludge accumulation causes treatment limitations and nuisance conditions at certain times of year

and needs to be remediated. To minimize the impacts of this situation, the City has stopped receiving hauled septage which is protective of the treatment system, but does not support the septic tank maintenance objectives of the county and state.

At the April 2016 meeting, the Board asked whether costs associated with sludge removal is considered routine operations and maintenance or a capital expenditure. Mr. Baker responded that lagoon systems need to remove sludge every 20-40 years, and is not something typically managed as routine maintenance. Duchesne last removed sludge from their lagoons approximately twenty years ago during the last facility upgrade and the proposed piping upgrades will give the City necessary operational flexibility to isolate individual cells for future cleaning operations.

The Board also asked how septage haulers were charged when hauled wastes were being accepted given that these wastes contributed to the sludge accumulation. The City was charging $0.05/gallon with resulting revenues amounting to approximately $18,000 per year (~ 8 percent of the City's annual sewer operations and maintenance cost). The City does intend to begin accepting septage upon completion of the facility upgrades, which provides an important water quality service to the region. The City is planning to do a rate analysis and increase its septage disposal rates accordingly prior to accepting septage again.

The Board's final question was regarding the proposed stream alteration and whether the City had considered the challenges of obtaining approval for the proposed stream alteration. The City's lagoons are located immediately adjacent to the Duchesne River and high spring flow in 2011 threatened the embankment that protects Cell #1. To ensure the lagoons are protected from such high flows, the City intends to re-route the stream where it intersects the lagoon bank (see Diagram 1). The City's engineer stated they are aware of the challenges and have incorporated sufficient time and funding in the project schedule to complete the work

PROJECT NEED:

Lagoon Cells 1 and 2 need to be remediated to restore the facility's design capacity of 0.42 MGD and to correct treatment deficiencies. To implement these corrective measures, the City needs to install pipes and gates that will allow it to bypass and isolate Cells 1 and 2 independently. This will allow the City to take a cell offline for rehabilitation. This proposed infrastructure will also provide the City with long-term flexibility in operating the lagoons, which will help relieve the solids accumulation problem in the future and improve treatment performance.

The facility's septage receiving capabilities need to be improved so this high-strength waste can be properly distributed in the lagoon cells to undergo treatment as designed. Past practice was to release the hauled waste on the lagoon bank which contributed to local accumulation, poor treatment, and deterioration of the lagoon bank.

The City also needs to protect its lagoon treatment plant infrastructure from high Duchesne River flows. By modifying the stream route back to its 2011 path long-term protection can be achieved.

ALTERNATVES EVALUATION

The City and its consulting engineer prepared an engineering evaluation and facilities plan for upgrading the lagoon system. The follow alternatives were analyzed.

1. No action
2. Sludge reduction by proprietary supplement
3. Cleaning and Maintenance of Cell 1 only
4. Cleaning Cells 1 and 2 and Infrastructure Upgrades
5. Add a Cell, Clean Cells 1 and 2, and Infrastructure Upgrades
6. Land application
7. River Realignment
8. Analyze Collection System Impacted by Duchesne County Event Center

POSITION ON PROJECT PRIORITY LIST:

The Duchesne City project is ranked No. 16 out of 16 projects on the FY 2016 Wastewater Treatment Project Priority List.

POPULATION GROWTH:

Population growth through the year 2040 was estimated to be 1.3% in the funding application.

	Year	Total
Current Population	2016	1,876
Design Population:	2040	2,336

PUBLIC PARTICIPATION AND DEMONSTRATION OF PUBLIC SUPPORT:

On March 22, 2016, the City held a public meeting to inform the community about the project and its intention to pursue funding for the project the City will hold a public hearing in June 2016.

IMPLEMENTATION SCHEDULE:

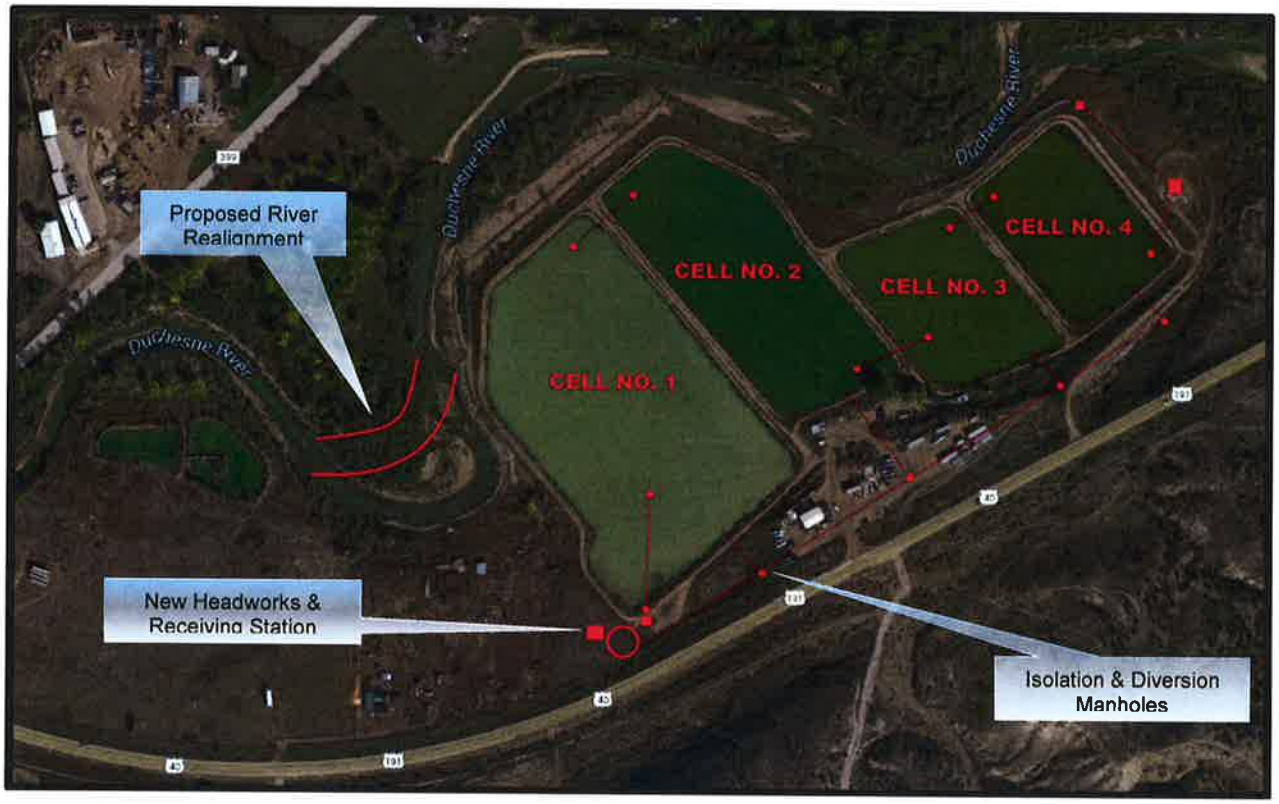
Public Meeting	March 22, 2016
Apply to WQB for Funding:	April 2016
WQB Funding Authorization:	June 2016
Public Hearing:	July 2016
Advertise EA (FONSI):	August 2016
Engineering Report Approval:	August 2016
Commence Design:	September 2016
Issue Construction Permit:	May 2017
Bid Opening:	June 2017
Commence Construction:	July 2017
Complete Construction:	July 2021

PROJECT DESCRIPTION:

The recommended alternative is to do the following:

- Dredging Cells 1 and 2
- Headworks upgrade, addition of diversion manholes, and bypass piping between cells
- River realignment

Diagram 1



COST ESTIMATE:

Task	Cost Estimate
Engineering – Facility Plan (City Funded)	$70,000
Engineering-Design	$206,000
Engineering - CMS	$230,000
Construction ($400,000 is septage receiving)	$2,435,000
Contingency (~7% of Construction)	$178,000
DWQ Origination Fee	$31,000
Legal and bonding	$20,000
Total:	$3,170,000

COST SHARING:

Duchesne City requests the following cost sharing approach for the project:

Funding Source	Funding Amount	Percent of Project
Duchesne City	$ 70,000	2%
WQB Loan	$ 3,100,000	98%
Total Amount:	$ 2,770,000	100%

ESTIMATED ANNUAL COST FOR SEWER SERVICE:

The estimated costs below are based on staff's recommended terms of a $400,000 grant and a $2,700,000 loan at 0.25% with a 30 year term:

Operation & Maintenance – Annual[1]	$	225,000
WQB Debt Service (0.25%; 30 yrs)	$	93,530
WQB Required Reserves (1½ pmt/6 yr)	$	23,382
Existing Sewer Debt Service *(2012 CIB loan $1,644,000 at 0%, 20 yrs)*	$	82,000
Total Annual Cost	$	423,912
Monthly Cost / ERU	$	44.94
Current monthly sewer payments	$	21.00
Cost calculated as % of 2014 MAGI ($48,902)		1.15%
1.4% of 2014 MAGI ($48,902)	$	57.05

[1] O&M cost amount updated since April 2016 WQB meeting

FINANCIAL ANALYSIS:

When establishing loan terms, the Board applies basic affordability criteria of 1.4% of the MAGI for sewer rates. In 2014 the Water Resources Reform and Development Act of 2014 (WRRDA) amended the Clean Water Act, which modified some of the requirements of the Clean Water SRF program. One of those modifications was that consideration to income, unemployment data, and population trends be included in determining affordability. On Sept 23, 2015 the Board adopted rule to comply with WRRDA, amending R317-101 to include the following language:

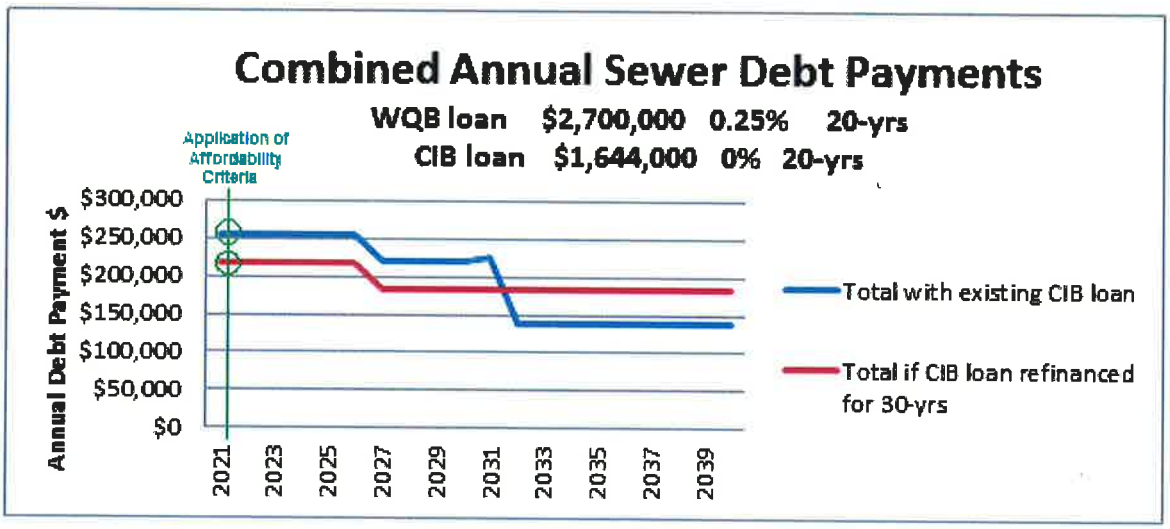
> *"Consideration will also be given to the applicant's unemployment data, population trends, and the applicant's level of contribution to the project."*

Horrocks Engineers, on behalf of the City, has submitted a letter (Attachment 3) requesting that the Board consider the City's economic trends, unemployment and population trends rather than rely solely on MAGI as the basis for determining affordable funding terms for this project. The City states that the 2014 MAGI data is not indicative of the community's economy or ability to repay a loan, and has included additional information on the City's current financial condition and economic trends.

The residents of Duchesne City are heavily dependent on income from local oil production and the dramatic decline in oil prices has been primarily responsible for the City's economic downturn. Since 2014, oil prices have dropped from $85/barrel to a low of $32/barrel (January, 2016). Correspondingly, revenue from building permits has decreased and unemployment for the City is the highest in the state at 18.3%, well above the current state average of 3.7 percent.

Staff is in agreement with the City that the downturn in the local economy has resulted in a significant economic hardship that warrants additional consideration not currently accounted for in the basic affordability criteria of 1.4% of MAGI. To quantify the affordability impacts of Duchesne's economic conditions, staff researched a number of approaches and ultimately arrived at a methodology that calculates an "affordability adjustment" to the current guideline of 1.4% of MAGI. This adjustment is calculated based on the extent of an applicant's deviation from the statewide baseline with regard to poverty rates, unemployment rates, MAGI, and community size. Staff further tested and evaluated this methodology by comparing and analyzing the resulting "affordability adjustment" for all cities in Utah.

Staff's recommendation for Duchesne City is based on the adjusted affordability rate of 1.15%, determined with the methodology described. To identify matching funding terms, staff modeled the project cost using a static 20-year model (Attachment 1). Staff felt it appropriate in comparing affordability to the 1.15% of MAGI to use an adjusted CIB debt payment of $45,300 (the annual payment if the City refinanced their CIB loan from 20-yrs to 30-yrs) rather than the annual payment of $82,000. Staff felt that was more reflective of the cost to rate payers over the life of the loan since the CIB debt ends in 2031. The effect of this adjustment is shown in the graph below.



A 20-year loan at the recommended interest rate is considered "affordable" but would force the City to raise their rates to more than $51/month which is a significant economic hardship to the residents of Duchesne who are currently paying $21/month. Staff is therefore recommending a 30-year term for this loan (Attachment 2) to help the City mitigate this hardship as well as to

give consideration to the water quality benefit of providing septage receiving service to the area. Extending the term is equivalent to an additional subsidy of approximately $200,000. A 30-year term is acceptable for this project given the nature and expected useful life of the proposed upgrades.

The health officer for TriCounty Health Department, Jordan Mathis, is supportive of this project and has submitted a letter to the Board (Attachment 4) outlining the benefits of this project to public health and water quality in the TriCounty area.

STAFF RECOMMENDATION:

Staff is supportive of this important water quality project and recommends that the Board authorize **a grant in the amount of $400,000 and a loan in the amount of $2,700,000 for 30 years with an interest rate of 0.25 % and a design advance of $206,000.**

SPECIAL CONDITIONS:

1. Should Duchesne City obtain additional funding for this project from other sources that results in a substantive change in the affordability determination, the Board reserves the right to revise its authorized funding.

2. Duchesne City must agree to continue to participate annually in the Municipal Wastewater Planning Program (MWPP).

3. Duchesne City must complete a Water Conservation and Management Plan.

4. Duchesne City must raise monthly sewer rates within twelve months of the Board's authorization sufficient to cover current sewer expenses and must raise rates prior to loan closing sufficient to cover debt service coverage over the life of the loan.

ATTACHMENT 1

Duchesne City - Water Quality Board

20 Year Loan Static Cost Model

Project Costs

Planning (City Funded)	$	70,000
Legal/Bonding	$	20,000
DWQ Loan Origination Fee	$	31,000
Engineering - Design	$	206,000
Engineering - CMS	$	230,000
Construction	$	2,135,000
Contingency (~7% const. cost)	$	178,000
Septage Receiving Station ($400k w/ design, CMS)	$	300,000
Total Project Cost:	$	**3,170,000**

Project Funding

Local	$	70,000
CIB Loan		
CIB Grant		
WQB Loan	$	3,100,000
WQB Grant		
Total Project Cost:	$	**3,170,000**

Current Customer Base & User Charges

Total ERU's	786
Duchesne City MAGI (2014):	$48,902
Affordable Monthly Rate at 1.4%	$57.05
Current Impact Fee (per ERU):	$5,500.00
Current Monthly Fee (per ERU)	$21.00
Existing O&M expenses Treatm	$225,000
New O&M expenses Treatment	$225,000
Existing Sewer Debt Service	$82,000

Funding Conditions

Loan Repayment Term:	20
Reserve Funding Period:	6

ESTIMATED COST OF SEWER SERVICE

WQB Grant Amount	WQB Loan Amount	WQB Loan Interest Rate	WQB Loan Debt Service	WQB Loan Reserve	WQB Debt Service & Loan Reserves	Annual Sewer O&M Cost	Existing Debt Service	Monthly Sewer Rate	Sewer Cost as a % of MAGI
1,550,000	1,550,000	1.00%	85,894	21,473	107,367	225,000	82,000	43.93	1.08%
400,000	**2,700,000**	**0.25%**	**138,572**	**34,643**	**173,215**	**225,000**	**82,000**	**50.91**	**1.25%**
	3,100,000	0.00%	155,000	38,750	193,750	225,000	82,000	53.09	1.30%
-	3,100,000	0.25%	159,101	39,775	198,876	225,000	82,000	53.63	1.32%
-	3,100,000	0.50%	163,266	40,817	204,083	225,000	82,000	54.19	1.33%
	3,100,000	0.65%	165,796	41,449	207,245	225,000	82,000	54.52	1.34%
-	3,100,000	0.75%	167,495	41,874	209,369	225,000	82,000	54.75	1.34%
-	3,100,000	1.00%	171,787	42,947	214,734	225,000	82,000	55.32	1.36%
-	3,100,000	1.15%	174,393	43,598	217,992	225,000	82,000	55.66	1.37%
-	3,100,000	1.25%	176,143	44,036	220,179	225,000	82,000	55.89	1.37%
-	3,100,000	1.50%	180,562	45,140	225,702	225,000	82,000	56.48	1.39%
-	3,100,000	1.75%	185,043	46,261	231,303	225,000	82,000	57.07	1.40%
400,000	2,700,000	0.25%	138,572	34,643	173,215	225,000	45,300	47.02	**1.15%**

ATTACHMENT 2

Duchesne City - Water Quality Board

30 Year Loan Static Cost Model

Project Costs

Planning (City Funded)	$	70,000
Legal/Bonding	$	20,000
DWQ Loan Origination Fee	$	31,000
Engineering - Design	$	206,000
Engineering - CMS	$	230,000
Construction	$	2,135,000
Contingency (~7% const. cost)	$	178,000
Septage Receiving Station ($400k w/ design, CMS)	$	300,000
Total Project Cost:	**$**	**3,170,000**

Project Funding

Local	$	70,000
CIB Loan		
CIB Grant		
WQB Loan	$	3,100,000
WQB Grant		
Total Project Cost:	**$**	**3,170,000**

Current Customer Base & User Charges

Total ERU's	786
Duchesne City MAGI (2014):	$48,902
Affordable Monthly Rate at 1.4%	$57.05
Current Impact Fee (per ERU):	$5,500.00
Current Monthly Fee (per ERU)	$21.00
Existing O&M expenses Treatment & Collection	$225,000
New O&M expenses Treatment & Collection	$225,000
Existing Sewer Debt Service	$82,000

Funding Conditions

Loan Repayment Term:	30
Reserve Funding Period:	6

ESTIMATED COST OF SEWER SERVICE

WQB Grant Amount	WQB Loan Amount	WQB Loan Interest Rate	WQB Loan Debt Service	WQB Loan Reserve	WQB Debt Service & Loan Reserves	Annual Sewer O&M Cost	Existing Debt Service	Total Annual Sewer Cost	Monthly Sewer Rate	Sewer Cost as a % of MAGI
1,550,000	1,550,000	1.00%	60,060	15,015	75,074	225,000	82,000	382,074	40.51	0.99%
400,000	**2,700,000**	**0.25%**	93,530	**23,382**	**116,912**	**225,000**	**82,000**	**423,912**	**44.94**	**1.10%**
-	3,100,000	0.00%	103,333	25,833	129,167	225,000	82,000	436,167	46.24	1.13%
	3,100,000	0.25%	107,386	26,846	134,232	225,000	45,300	404,532	42.89	1.05%
-	3,100,000	0.50%	111,535	27,884	139,418	225,000	82,000	446,418	47.33	1.16%
-	3,100,000	0.75%	115,779	28,945	144,724	225,000	82,000	451,724	47.89	1.18%
-	3,100,000	1.00%	120,119	30,030	150,149	225,000	82,000	457,149	48.47	1.19%
-	3,100,000	1.15%	122,768	30,692	153,461	225,000	82,000	460,461	48.82	1.20%
-	3,100,000	1.25%	124,553	31,138	155,692	225,000	82,000	462,692	49.06	1.20%
-	3,100,000	1.50%	129,081	32,270	161,352	225,000	82,000	468,352	49.66	1.22%
-	3,100,000	1.75%	133,702	33,426	167,128	225,000	82,000	474,128	50.27	1.23%
294,112	2,805,888	0.00%	93,530	23,382	116,912	225,000	82,000	423,912	44.94	1.10%

Attachment 3

157 South 300 East
Roosevelt, UT 84066
www.horrocks.com

HORROCKS ENGINEERS

Roosevelt Office
Tel: 435.722.0968
Fax: 801.763.5101

VIA: ELECTRONIC MAIL

May 24, 2016

Department of Environmental Quality
Division of Water Quality
Utah Water Quality Board
195 North 1950 West
Salt Lake City, UT 84116

Subject: Duchesne City Lagoon Expansion and Sludge Removal Project

Dear Utah Water Quality Board:

Duchesne City appeared before your Board of Directors (Board) on April 27, 2016 in St. George Utah to discuss funding for the subject project. The planned improvements received a positive response as a necessary project.

According to http://www.deq.utah.gov/FeesGrants/funds/drinkingwater/MAGIbycity.htm, the 2014 MAGI for Duchesne City is $46,236. Using the 1.4% affordability guide, Duchesne City's sewer rate should be at $53.94 per month. We do not feel that this number is a true representation of the current economy in Duchesne City. The City's current sewer rate of $21.72 versus the calculated MAGI rate of $53.94 has come up repeatedly at several meetings with DEQ and CIB staff prior to and since the St. George meeting. It was also discussed at the CIB meeting on May 05, 2016.

Due to the current economic conditions within the Uintah Basin, Duchesne City requests that DEQ review the following information:

1. Duchesne City has commissioned the Rural Water Association of Utah to perform a survey to re-evaluate the existing MAGI. The City is optimistic that the most recent data will document a significantly lower MAGI for 2015. The results of this survey will be made to DEQ staff as soon as it becomes available.

2. Duchesne City's monthly sewer rates in comparison to other municipalities similar to Duchesne City are as follows:

Duchesne City:	**$21.72**	Ashley Valley:	$26.00
Ballard:	$25.00	Emery:	$11.96
Roosevelt City:	$20.00	Ferron:	$10.20
Vernal City:	$26.60	Price:	$27.50
Manila:	$14.00	Castle Dale:	$8.00
Myton:	$18.00	Salina:	$18.00

3. Duchesne City had to put a stop to septage truck discharge to prevent further sludge accumulation; but when it did allow discharging by oil company septage trucks, the rate was $0.05 per gallon. This equates to $0.05 - $24.95 for 1 to 499 gallons respectively, and $25.00 - $50.00 for 500 to

1000 gallons respectively. Myton City currently charges $50.00 for 1-499 gallons and $75 for 500-1000 gallons.

The assumption was made that one (1), 1000 gallon septage truck per day would discharge its contents at the wastewater treatment facility. This value takes into account long term average projections that include an up and down oil industry. If the City were to raise its rates to $0.075 per gallon or $75 per 1000 gallons, the estimated revenue from septage trucks would be $2,250 per month.

4. Hardship: Since 2014, oil prices have taken a hit, and the result has put a strain on the local economy in Duchesne City, therefore the current economy doesn't match that of 2014. Below is the data that supports this:

a. Unemployment Rate

November of 2014	3.1%
March of 2016	11.3%

b. Building Permit Fee Totals

2014	$29,412.60
2015	$19,372.62
2016	$2,000 to date

c. Sewer Revenue

2013 sewer service charges	$205,008
2014 sewer service charges	$213,457
2015 sewer service charges	$198,210

Based upon your review of this information, Duchesne City hopes that you will agree that increasing the monthly sewer bill by 150% is unreasonable. Duchesne City asks that the Board take these difficulties into consideration and support a project funding package at 50% grant and 50% loan.

We are representing Duchesne City, and provide this information on their behalf. We appreciate your assistance in this matter. Please contact our office with any questions or concerns.

Sincerely,
HORROCKS ENGINEERS, Agent for Duchesne City

Chuck A. Richins

Chuck A. Richins, P.E.
Cc: File

Attachment 4

Uintah County
133 South 500 East
Vernal, UT 84078
(435) 247-1177

Duchesne County
409 South 200 East
Roosevelt, UT 84066
(435) 722-6300

Jordan D. Mathis, M.O.L
Director/Health Officer
TRICOUNTYHEALTH.COM

June 14, 2016

Utah Water Quality Board
195 N. 1950 W.
Salt Lake City, UT 84116

Dear Board Members,

TriCounty Health Department would like to offer its support for Duchesne City's application for funding to perform maintenance and update their sewer lagoons. Funding this project will benefit the environment and the public's health in two ways: first, by giving the Liquid Waste Operators another location to dump their tanks which in turn should decrease the number illegal dumping incidents, and second, by rerouting the river away from the lagoons to prevent the potential for contamination.

The update will assist in compliance with UTAH ADMINISTRATIVE CODE, **R317. Environmental Quality, Water Quality.** Rule R317-550. Rules for Liquid Waste Operations. As in effect on June 1, 2016.

> **R317-550-7. Disposal of Wastes at Approved Locations.**
>
> 7.1. All wastes collected shall be disposed in accordance with the rules and regulations of the Division and the local health department having jurisdiction. Disposal shall be accomplished by one of the following methods:
>
> A. Into a public sewer system at the place and point in the system designated and approved by the appropriate authority.
>
> 7.2. No waste shall be deposited into a sewerage system or treatment works that will have a detrimental effect on the overall operation.
>
> 7.3. Under no circumstances shall dumping of wastes be permitted into any public or private lake, pond, stream, river, watercourse, or any other body of water, or onto any public or private land which has not been designated as an approved disposal site.

Furthermore, the proposed project includes efforts to prevent potential contamination of state waters by redirecting the flow of the Duchesne River away from the lagoons, thus preventing a potential breach of the lagoons. TriCounty Health feels that this is an important given the lagoon's close proximity to the Duchesne River.

BOARD OF HEALTH

Mark Raymond - Ron Winterton - Karen Perry - Tod Tesar - Richard Jolley, DDS -Terry Nelson - Keith Goodspeed - Pat Asbill

We hope you will give this application your full consideration. This project not only serves to perform much needed maintenance on critical community infrastructure, but it also provides an added value in its proposed preventive and protective measures. As such, TriCounty Health Department fully supports Duchesne City in their efforts to seek funds to carry out this important work.

Sincerely,

Jordan D. Mathis
Health Officer / Director

BOARD OF HEALTH

Mark Raymond - Ron Winterton - Karen Perry - Tod Tesar - Richard Jolley, DDS - Ilene Jensen - Keith Goodspeed - Pat Asbill